

THE BOURNS[®] KNOBPOT

- precision potentiometer, dial and knob, all in front of the panel.
- with new Mil Spec color accessories for increased versatility.



BOURNS KNOBPOT— NOTHING BEHIND THE PANEL BUT THE SOLDER HOOKS AND THE BUSHING!

With the new Bourns Knobpot, nothing is behind the panel but the solder hooks and the bushing. Everything else is out in front, integrated into a single, compact unit. (Just $\frac{3}{4}$ " in diameter by 1" long, the easy-to-mount 10-turn Model 3600 Knobpot is shorter by $\frac{1}{2}$ " than comparable potentiometers alone—to say nothing of the space it saves by incorporating its own turns-counting dial.)

Settings are easy to make and permanent. The clear-reading dial lets you adjust to 0.5% of the unit's total resistance value, and the knob's self-locking feature keeps your adjustment steady even under 10G vibration or 50G shock.

Resistances: 1000 Ω to 100K std. (to 250K spl.)

Dial Accuracy (Including Linearity): $\pm 0.5\%$

Power rating: 1.5W @ 25°C

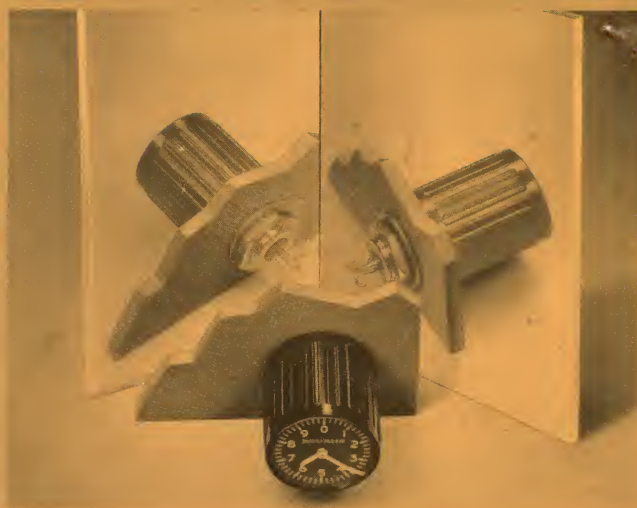
Max. operating temp.: +85°C

Mech. life: 200,000 revolutions

Humidity: MIL-STD-202, Method 103, Condition B (steady state)



ACTUAL SIZE



NOW YOU CAN MULTIPLY THE USEFULNESS OF KNOBPOT

TAKE YOUR CHOICE OF DIAL-FACE OR PLAIN-FACE STYLE



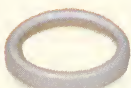
This is the standard model Knobpot—complete with dial for visual read-out of settings.

If you don't need the read-out dial, here's the same basic 10-turn precision potentiometer at a much reduced price.

WITH ANY OF THESE ACCESSORIES OR ANY COMBINATION OF THEM

Accessories meet color requirements of MS-91528B and MIL-STD-242 (ships)

COLOR SNAP-RINGS



To color-code control panels or impart higher style to equipment design.

COLOR MIL-SPEC SLIP-OVER KNOBS



For function, for style. Standard 1" MIL-spec diameter.

STAINLESS STEEL SKIRTS

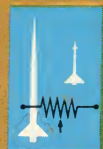


For a finishing touch of high-polish glamour.

LOCKING DEVICE (BRAKE)



To prevent accidental jarring of settings. Easy to install—simply snaps into place between the potentiometer and the panel.



BOURNS

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WRITE FOR FULL INFORMATION ON KNOBPOT AND KNOBPOT ACCESSORIES

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Model 3600 KNOBPOT® Potentiometer

10-Turn $\frac{3}{4}$ " Diameter Bushing Mount

MAY 1963

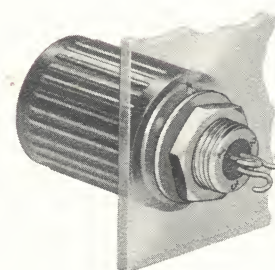
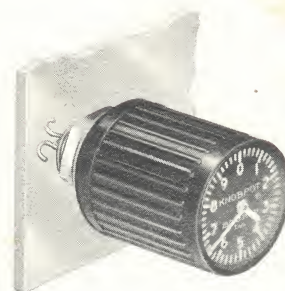
Features

- New precision potentiometer concept*
Potentiometer, knob, and readout dial in one package requiring less front panel space than most dials alone — $\frac{3}{4}$ " diameter by 1" long.
Requires no back panel space.

- Readability, Repeatability, and Phasing
New clock face readout provides excellent readability and setting accuracy previously available only in large diameter dials.
Repeatability, within 0.1% voltage ratio.

Phasing of dial readout to potentiometer performed at factory with accuracy of $\pm 0.5\%$ (including linearity).

- Mounting
Only two drill holes required.
Simple installation — place unit in drilled panel and secure with lockwasher and nut.
- Constructed and monitored for reliability
Bourns exclusive SILVERWELD® multi-wire termination
100% contact pressure control insures high mechanical life
Self-locking feature provides excellent stability during vibration and shock
Sealed to pass MIL-STD-202, Method 103 Humidity (steady state)
Sample tested monthly in Bourns Reliability Assurance Program

**Standard Resistances**

Resistance (Ohms)	Part Numbers *	
	3600S Solder Lug	Maximum Resolution (Percent)
1,000	3600S-1-102	.035
2,000	3600S-1-202	.025
5,000	3600S-1-502	.029
10,000	3600S-1-103	.025

SPECIAL RESISTANCES AVAILABLE FROM 100Ω TO 250K

*Patent No. 3,069,646

Resistance (Ohms)	Part Numbers *	
	3600S Solder Lug	Maximum Resolution (Percent)
20,000	3600S-1-203	.023
50,000	3600S-1-503	.015
100,000	3600S-1-104	.011

* The last three digits of the part number represent the resistance in standard code.

BOURNS, Inc.

Model 3600 KNOBPOT® Potentiometer

Specifications

ELECTRICAL CHARACTERISTICS

Resistance Values (see chart on front)	100Ω to 250K Ohms
Resistance tolerance*	±5% standard, closer tolerances available
Absolute Minimum Resistance*	
1K to 100K	0 to 0.1%
Noise during adjustment*	100 ohms ENR Maximum
Insulation resistance, 500 VDC*	1000 megohms Minimum
Resolution (see chart on front)	0.035% to 0.011%
Electrical Rotation	3600° (+10°/-0°)
Dial accuracy (correlation of dial reading to output, including linearity)	±0.5% standard
Repeatability of dial reading	0.1% voltage ratio
Linearity	See Dial Accuracy above

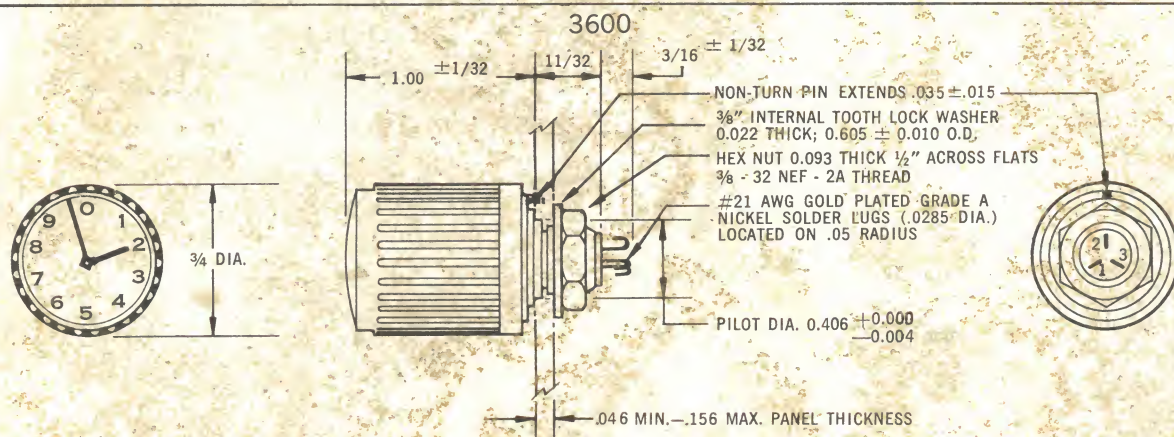
ENVIRONMENTAL CHARACTERISTICS

Power Rating:	
25°C (77°F) Ambient	1.50 watt
75°C (167°F) Ambient	0.75 watt
125°C (257°F) Ambient	0 watt
Operating temperature range	-65° to +125°C (-85° to +257°F)
Temperature coefficient of resistance wire	0.002%/°C
Humidity — MIL-STD-202B, Method 103	100 megohms min insulation resistance after removal from chamber
Vibration	MIL-R-12934C, 10G
Contact bounce	0.1 Millisecond Maximum
Wiper shift, max.	0.2%
Shock	MIL-R-12934C, 50G
Contact bounce and wiper shift	Same as vibration

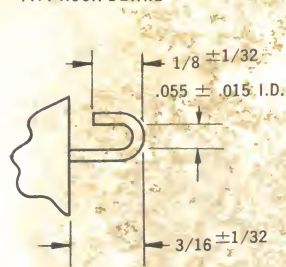
Sand and Dust	Meets MIL-E-5272C, Proc. 1
Salt spray	Materials meet MIL-STD-202B, Method 101A
Fungus	Materials meet MIL-E-5272C
Load Life	1000 hours per MIL-R-12934C
Resistance shift, maximum	2.0%
Mechanical Life:	
Rotational cycling	10,000 cycles (200,000 dial revol.) without discontinuity
Dither (angular cycling wiper movement of 60°)	100,000 cycles without discontinuity
Dielectric Strength	MIL-STD-202B, Method 301
Room conditions	1000 VAC
80,000 feet (0.8" Hg.)	400 VAC
PHYSICAL CHARACTERISTICS	
Torque, in.-oz.	1.0 min., 5.0 max. (starting) 5.0 max. (running)
Marking	Manufacturer's name, resistance, date code and manufacturer's part number
Appearance	Legible markings, no physical defects
Backlash	1.0 degree max.
Mechanical stop strength	20 in.-oz.
Mechanical rotation	3600° (+20°/-0°)
Weight	0.62 oz.
Mounting	Bushing mount

* Inspection Note: Applicable 100% and statistical sampling performed to insure foremost quality.

Specifications are subject to change without notice.



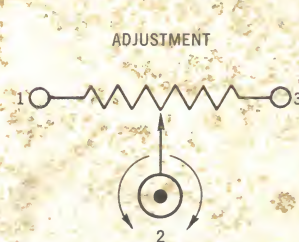
TYP. HOOK DETAIL



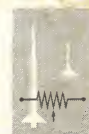
PANEL DRILLING TEMPLAT



WIRING DIAGRAM



TOLERANCES: EXCEPT WHERE NOTED
DECIMALS: XX ± .010, XXX ± .005
FRACTIONS: ± 1/64



BOURNS

Precision Potentiometer

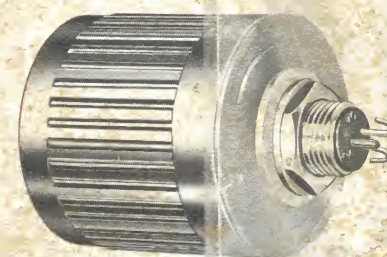
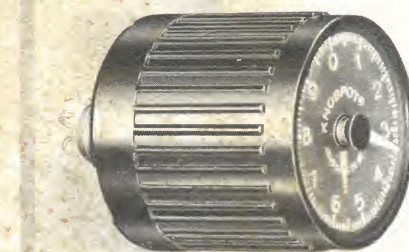
Model 3640 KNOBPOT® Senior Potentiometer 10-Turn 1¼" Diameter Bushing Mount

OCTOBER 1963

Features

actual size

- New precision potentiometer concept
Potentiometer, knob, and readout dial in one package requiring less front panel space than most dials alone — 1¼" diameter by 1½" long.
Requires no back panel space.
- Readability, Repeatability, and Phasing
New clock face readout provides excellent readability and setting accuracy previously available only in large diameter dials.
Repeatability, within $\pm 0.05\%$ voltage ratio.
Phasing of dial readout to potentiometer performed at factory with accuracy of $\pm 0.1\%$ (including linearity).
- Mounting
Only two drill holes required.
Simple installation — place unit in drilled panel and secure with lockwasher and nut.
- Constructed and monitored for reliability
Bourns exclusive SILVERWELD® multi-wire termination
100% contact pressure control insures high mechanical life
Self-locking feature provides excellent stability during vibration and shock
Sealed to pass MIL-STD-202, Method 103 Humidity (steady state)
Sample tested monthly in Bourns Reliability Assurance Program



Standard Resistances

Resistance (Ohms)	Part Numbers* 3640S Solder Lug	Maximum Resolution (Percent)
500	3640S-1-501	.03
1,000	3640S-1-102	.028
2,000	3640S-1-202	.02
5,000	3640S-1-502	.015
10,000	3640S-1-103	.012

SPECIAL RESISTANCES AVAILABLE FROM 100Ω TO 250K

Resistance (Ohms)	Part Numbers* 3640S Solder Lug	Maximum Resolution (Percent)
20,000	3640S-1-203	.012
50,000	3640S-1-503	.011
100,000	3640S-1-104	.01
250,000	3640S-1-254	.006

*The last three digits of the part number represent the resistance in standard code.

BOURNS, Inc.

Model 3640 KNOBPOT® Senior Potentiometer

Specifications

ELECTRICAL CHARACTERISTICS

Resistance Values (see chart on front)	500 to 250K Ohms
Resistance tolerance*	±3% standard, closer tolerances available
Absolute Minimum Resistance*	
500 to 250K	0 to 0.1% or 0 to 1.0Ω, whichever is greater
Noise during adjustment*	100 ohms ENR Maximum
Insulation resistance, 500 VDC*	1000 megohms Minimum
Resolution (see chart on front)	0.03% to 0.006%
Electrical Rotation	3600° (+10°/-0°)
Dial accuracy (correlation of dial reading to output, including linearity).	
500 to 2K	±0.15%
5K to 200K	±0.10%
Repeatability of dial reading	±0.05% voltage ratio
Linearity	See Dial Accuracy above

ENVIRONMENTAL CHARACTERISTICS

Power Rating:	
25°C (77°F) Ambient	2.5 watt
65°C (149°F) Ambient	1.5 watt
125°C (257°F) Ambient	0 watt
Operating temperature range	-65° to +125°C (-85° to +257°F)
Temperature coefficient of resistance wire	0.002%/°C
Humidity — MIL-STD-202B, Method 103	100 megohms min insulation resistance after removal from chamber
Vibration	MIL-R-12934C, 10G
Contact bounce	0.1 Millisecond Maximum
Wiper shift, max.	0.2%
Shock	MIL-R-12934C, 50G
Contact bounce and wiper shift	Same as vibration

Sand and Dust	Meets MIL-E-5272C, Proc. 1
Salt spray	Materials meet MIL-STD-202B, Method 101A
Fungus	Materials meet MIL-E-5272C
Load Life	1000 hours per MIL-R-12934C
Resistance shift, maximum	2.0%
Mechanical Life:	
Rotational cycling	10,000 cycles (200,000 dial revol.) without discontinuity
Dither (angular cycling wiper movement of 60°)	100,000 cycles without discontinuity
Dielectric Strength	MIL-STD-202B, Method 301
Room conditions	1000 VAC
80,000 feet (0.8" Hg.)	250 VAC

PHYSICAL CHARACTERISTICS

Torque, in.-oz.	1.0 min., 5.0 max. (starting) 5.0 max. (running)
Marking*	Manufacturer's name, resistance, date code and manufacturer's part number
Appearance*	Legible markings, no physical defects
Backlash	1.0 degree max.
Mechanical stop strength	.20 in.-oz.
Mechanical rotation	3600° (+20°/-0°)
Weight	0.62 oz.
Mounting	Bushing mount

*Inspection Note: Applicable 100% and statistical sampling performed to insure foremost quality.

Specifications are subject to change without notice.

